

## Erica R. Fuhrmeister, Ph.D.

Assistant Professor, Environmental and Occupational Health Sciences  
Assistant Professor, Civil and Environmental Engineering  
University of Washington  
Seattle, WA 98105  
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### EDUCATION

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| <b>Ph.D.</b> | <b>University of California, Berkeley</b><br>Department: Civil and Environmental Engineering<br>Thesis Title: Household Reservoirs of Enteric Pathogens in Rural Bangladesh<br>Thesis Advisor: Prof. Kara Nelson | 2015-2019 |
| <b>M.S.</b>  | <b>University of California, Berkeley</b><br>Department: Civil and Environmental Engineering   | 2014-2015 |
| <b>B.S.</b>  | <b>Johns Hopkins University</b><br>Department: Geography and Environmental Engineering<br>Concentration: Public Health   | 2010-2014 |

### ACADEMIC APPOINTMENTS

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|---|-------------------|
| <b>Assistant Professor</b> , Environmental and Occupational Health Sciences, School of Public Health,<br>University of Washington, Seattle, Washington, USA | June 2022-present |
| <b>Assistant Professor</b> , Civil and Environmental Engineering, College of Engineering, University of<br>Washington, Seattle, Washington, USA             | June 2022-present |

### RESEARCH EXPERIENCE

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| <b>UC Berkeley/Tufts University</b><br><i>NSF Postdoctoral Research Fellow in Biology</i><br><i>Sponsoring Scientist: Asst. Prof. Amy Pickering, Civil and Environmental Engineering</i> | 2019-2022 |
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### PEER-REVIEWED PUBLICATIONS

- Fuhrmeister, E. R.**; Harvey, A. P.; Nadimpalli, M. L.; Gallandat, K.; Ambelu, A.; Arnold, B. F.; Brown, J.; Cumming, O.; Earl, A. M.; Kang, G.; Kariuki, S.; Levy, K.; Pinto, C.; Swarthout, J. M.; Trueba, G.; Tsukayama, P.; Worby, C. J.; Pickering, A. J. Evaluating the relationship between community-level water and sanitation access and the global burden of antibiotic resistance using human fecal metagenomes from 26 countries: an ecological study. *The Lancet Microbe* 2023, 4 (8), e591–e600.
- Bliss, S. S.; Abraha, E. A.; **Fuhrmeister, E. R.**; Pickering, A. J.; Bascom-Slack, C. A. Learning and STEM Identity Gains from an Online Module on Sequencing-Based Surveillance of Antimicrobial Resistance in the Environment: An Analysis of the PARE-Seq Curriculum. *PLOS ONE* 2023, 18 (3), e0282412.
- Mertens, A.; Arnold, B. F.; Benjamin-Chung, J.; Boehm, A. B.; Brown, J.; Capone, D.; Clasen, T.; **Fuhrmeister, E.**; Grembi, J. A.; Holcomb, D.; Knee, J.; Kwong, L. H.; Lin, A.; Luby, S. P.; Nala, R.; Nelson, K.; Njenga, S. M.; Null, C.; Pickering, A. J.; Rahman, M.; Reese, H. E.; Steinbaum, L.; Stewart, J.; Thilakarathne, R.; Cumming, O.; Colford, J. M.; Ercumen, A. Effects of Water, Sanitation, and Hygiene Interventions on Detection of Enteropathogens and Host-Specific Faecal Markers in the Environment: A Systematic Review and Individual Participant Data Meta-Analysis. *The Lancet Planetary Health* 2023, 7 (3), e197–e208.
- Swarthout, J.M.\*; **Fuhrmeister, E.R.\***; Hamzah, L.; Harris, A.R.; Gurley, E.S.; Satter, S.M.; Boehm, A.B.; Pickering, A.J. Differential overlap in human and animal fecal microbiomes and resistomes in rural versus urban Bangladesh. *Appl. Environ. Microbiol.* 2022, 88 (14), e00759-22.
- Nadimpalli, M.L.; Lanza, V.F.; Montealegre, M.C.; Sultana, S; **Fuhrmeister, E.R.**; Worby, C.J; Teichmann, L.; Caduff, L.; Swarthout, J.M.; Crider, Y.S.; Earl, A.M.; Brown, J.; Luby, S.P.; Mohammad, A.I.; Julian, T. R.; Pickering, A.J.

Drinking Water Chlorination has Minor Effects on the Intestinal Flora and Resistomes of Bangladeshi Children. *Nat. Microbiol.* 2022, 7 (5), 620–629.

6. Sklar, R.; Zhou, Z.; Ndayisaba, W.; Muspratt, A.; **Fuhrmeister, E.R.**; Nelson, K.L.; Hammond, K. Estimating adenovirus and *Cryptosporidium* risk to sanitation workers during fecal waste collection and processing—A case study from Kigali, Rwanda. *J. Water, Sanit. Hyg. Dev.* 2021, 11 (4), 570–578.
7. Harvey, A.P.\*; **Fuhrmeister, E.R.\***; Cantrell M.; Swarthout, J.M.; Nadimpalli, M.; Powers, J.; Pitol, A.K.; Julian, T.R.; Pickering, A.J. Longitudinal monitoring of SARS-CoV-2 RNA on high touch surfaces in a community setting. *Environ. Sci. Technol. Lett.* 2021, 8 (2), 168-175. *ES&T Letters 2021 Best Paper Award*
8. **Fuhrmeister, E. R.**; Larson, J. R.; Kleinschmit, A. J.; Kirby, J. E.; Pickering, A. J.; Bascom-Slack, C. A. Combating Antimicrobial Resistance Through Student-Driven Research and Environmental Surveillance. *Front. Microbiol.* 2021, 12, 126.
9. **Fuhrmeister, E. R.**; Ercumen, A.; Grembi, J. A.; Islam, M.; Pickering, A. J.; Nelson, K. L. Shared Bacterial Communities between Soil, Stored Drinking Water, and Hands in Rural Bangladeshi Households. *Water Res. X* 2020, 9.
10. **Fuhrmeister, E.R.**; Ercumen, A.; Pickering, A.J.; Jeanis, K.M.; Crider, Y.; Ahmed, M.; Brown, S.; Alam, M.; Sen, D.; Islam, S.; Kabir, M.H.; Islam, M.; Rahman, M.; Kwong, L. H.; Arnold, B. F.; Luby, S. P.; Colford, J. M.; Nelson, K. L. Effect of sanitation improvements on pathogens and microbial source tracking markers in the rural Bangladeshi household environment. *Environ. Sci. Technol.* 2020, 54 (7), 4316–4326.
11. **Fuhrmeister, E.R.**; Ercumen, A.; Pickering, A.J.; Jeanis, K.M.; Ahmed, M.; Brown, S.; Arnold, B.F.; Hubbard, A. E.; Alam, M.; Sen, D.; Islam, S.; Kabir, M. H.; Kwong, L. H.; Islam, M.; Unicomb, L.; Rahman, M.; Boehm, A. B.; Luby, S. P.; Colford, J. M.; Nelson, K. L. Predictors of enteric pathogens in the domestic environment from human and animal sources in rural Bangladesh. *Environ. Sci. Technol.* 2019, 53 (17), 10023–10033.
12. **Fuhrmeister, E.R.**; Schwab, K.J.; Julian, T.R. Estimates of nitrogen, phosphorus, biochemical oxygen demand, and fecal coliforms entering the environment due to inadequate sanitation treatment technologies in 108 low and middle income countries. *Environ. Sci. Technol.* 2015, 49 (19), 11604–11611.
13. Julian, T.R.; Islam, M.A.; Pickering, A.J.; Roy, S.; **Fuhrmeister, E.R.**; Ercumen, A.; Harris, A.; Bishai, J.; Schwab, K.J. Genotypic and phenotypic characterization of *Escherichia coli* isolated from feces, hands, and soils in rural Bangladesh using the Colilert Quanti-Tray System (IDEXX). *Appl. Environ. Microbiol.* 2015, 81 (5), 1735–1743.

\*Contributed equally to this work

#### INVITED PRESENTATIONS

1. **Fuhrmeister, E.R.** “Approaches for Global Surveillance of Antimicrobial Resistance Using Molecular Methods.” University of Washington-DEOHS, 1 Dec. 2022.
2. **Fuhrmeister, E.R.** “Using Metagenomic Sequencing to Surveil for Antimicrobial Resistance on a Global Scale.” University of Washington-CEE, 1 Dec. 2022.
3. **Fuhrmeister, E.R.** “A global analysis of community WASH access and antibiotic resistance in the human gut” (invited seminar) London School of Hygiene & Tropical Medicine, 14 Sept. 2021, virtual.
4. **Fuhrmeister, E.R.** “Environmental reservoirs of pathogens and emerging microbial threats: Lessons from Bangladesh, India, and the United States.” (invited seminar) Johns Hopkins University, 15 Apr. 2021, virtual.
5. **Fuhrmeister, E.R.** “A Global Perspective on Environmental Reservoirs of Pathogens and Emerging Microbial Threats.” (invited seminar) Georgia Institute of Technology, 19 Jan. 2021, virtual.
6. **Fuhrmeister, E.R.** “Household Reservoirs of Enteric Pathogens in Rural Bangladesh.” (invited seminar) University of California, Los Angeles, 12 Jan. 2021, virtual.

#### AWARDS AND HONORS

|  |      |
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| ES&T Letters Best Paper Award  | 2021 |
| NSF Postdoctoral Research Fellowship in Biology (NSF)  | 2019 |
| Center for Integrated Management of Antimicrobial Resistance Featured Trainee (Tufts University) | 2019 |
| NSF Graduate Research Fellowship (NSF)   | 2014 |

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| CEE Departmental Fellowship (UC Berkeley)                       | 2014 |
| Provost Undergraduate Research Award (Johns Hopkins University) | 2013 |

**TEACHING**

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|---|---------------------|
| <b>University of Washington</b>   | Fall 2023-present   |
| <i>Instructor-EnvH 444/544 Antimicrobial Resistance Impact on the Environment and Public Health</i> |                     |
| <b>University of Washington</b>   | Spring 2023-present |
| <i>Instructor-EnvH 409/509 Microbiome and Environmental Health</i>                                  |                     |

**SERVICE**

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| <b>DEI Committee, DEOHS</b>  | 2023-present |
| <b>Auxiliary Faculty Committee, DEOHS</b>  | 2022-2023    |
| <b>Graduate Admissions Committee, DEOHS</b>  | 2022-present |
| <b>One Health Combating Antimicrobial Resistance Subcommittee, WA Department of Health</b> | 2022-present |

**MENTORING**

**Postdoctoral Fellows**

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| <b>Irmarie Cotto</b> , University of Washington<br>American Society of Engineering Education efellow | 2023-present |
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**MS Students (as thesis advisor)**

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| <b>Elizabeth Rott</b> , University of Washington<br>Evaluating antimicrobial usage practices in small and large animal veterinary medicine        | 2022-2023    |
| <b>Angelo Ong</b> , University of Washington<br>Antibiotic resistance gene allele typing in Seattle wastewater using unique molecular identifiers | 2022-present |

**PhD Students (as postdoc mentor)**

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| <b>Joana Cabrera</b> , UC Berkeley<br>Cas9 Targeted Sequencing of <i>bla</i> <sub>TEM</sub> genes in urban Kenya  | 2022      |
| <b>Jenna Swarthout</b> , Tufts University<br>Genomic characterization of antibiotic-resistant <i>Escherichia coli</i> strains in humans, animals, and urban slum environments | 2019-2022 |
| <b>Abby Harvey</b> , UC Berkeley<br>Longitudinal Monitoring of SARS-CoV-2 on surfaces in a community setting  | 2019-2022 |

**Undergraduates**

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| <b>Libby Blazes</b> , Princeton University<br>One-on-one interviews of antibiotic prescription practices in veterinary medicine  | 2023-present |
| <b>Anysiah Taylor</b> , University of Washington<br>SURE-EH Fellow, Mary Gates Undergraduate Research Scholar<br>Seasonal influence on proliferation of antimicrobial resistance alleles in wastewater   | 2022-present |
| <b>Ruohan Hu</b> , University of Washington<br>Mary Gates Undergraduate Research Scholar<br>Community level genotype surveillance of $\beta$ -Lactam antimicrobial resistance gene alleles in wastewater | 2022-present |
| <b>Shruteek Mairal</b> , UC Berkeley<br>Optimized-sgRNA-Design   | 2021-2022    |
| <b>Scarlet Bliss</b> , Tufts University<br>PARE-Seq a virtual short course on sequencing-based surveillance of AMR   | 2019-2022    |
| <b>Eve Abraha</b> , Tufts University<br>PARE-Seq a virtual short course on sequencing-based surveillance of AMR  | 2021         |
| <b>Sara Brown</b> , UC Berkeley<br>Impact of household behavior and environmental factors on the presence of pathogenic <i>E. coli</i> in rural Bangladesh   | 2017-2018    |
| <b>Mahaa Ahmed</b> , UC Berkeley   | 2017         |

Determining the impact of sanitation via detection of pathogenic *E. coli* in environmental samples from rural Bangladesh